* substitute spec.

[01] This application is a National Stage application of PCT Application PCT/CA2003/001696 filed 07 November 2003 which claims benefit of US Provisional Application 60/424,699 filed 08 November 2002 and US Provisional Application 60/439,811 filed 14 January 2003.

Do NOT Enter
/MHW/ 10/27/2008

BACKGROUND OF THE INVENTION

[02] This invention relates to composites of boronic acid or derivatives thereof, such as boronates, and an organic or organometallic moiety including a functional group, which when cross-linked can be used as individual layers in multi-layer opto-electronic devices, such as light emitting devices.

[03] Many *organic or polymeric* optic, electronic and optoelctronic devices, such as light-emitting diodes (LEDs), field-effect transistors (FETs), solar cells, optical waveguides,etc., require high quality organic multi-layered configurations to optimise their performance.[1-3]

[04] In the fabrication of organic or polymeric light emitting devices it is advantageous to incorporate multi-layered structured materials with special functions into different location within the device. For instance, organic or polymer light-emitting diodes (LEDs) with a stack of hole-transporting, electron-transporting, and light-emitting layers exhibit enhanced device efficiency, higher brightness, and better stability. Solvent-based or wet-processing techniques such as reel-to-reel printing, screen-printing or spin-coating are important fabrication techniques that could significantly reduce fabrication costs of organic/polymer devices. However, the fabrication of multi-layer device structure is often difficult with wet-processing techniques. One typical problem of making multi-layered structures using solutions is the fact that the solvent used for each successive layer can lead to swelling or dissolution of underlying layers.

[05] In addition, in the case of some polymeric materials, it has been found when they are used in applications such as light-emitting diodes aggregation and excimer formation can occur which can cause poor optical stability in the fabricated devices.[4] For example, upon heating, or on passage of an electrical current through a polyfluorene based polymer, the formation of a